PROJECT NUMBER : 1811
PROJECT TITLE : Process Chemistry Development
PROJECT LEADER : G. D. Keritsis
PERIOD COVERED : December, 1990

I. CAST LEAF DEVELOPMENT

A. Objective: To investigate appropriate binder systems to be used as an alternative to the current sheet processes.

B. Results: The formulations that produced acceptable handsheets with 8-10 percent guar gum and the BL or the BL/RL tobacco feedstocks did not process well in the Cast Leaf Laboratory. The difference in processability was found to be due to the mode of drying of cast sheets in the two laboratories.

While the Cast Leaf Laboratory personnel are working to improve the Glenro dryer to facilitate the processability of these formulations, the Process Chemistry personnel are concentrating their efforts to develop formulations that are less sensitive to drying techniques.

To date, it has been found that the BL/RL tobacco feedstock produces excellent handsheets with 4 percent guar and 6 percent high M.W. pectin when dried on a steam bath, and that this formulation, upon adjusting its pH to 4.25 with 5 percent citric acid, processed very well when dried on the steam box or in the circulating hot air oven at 155°C.

Handsheets of US and Spanish tobacco feedstocks with crossed-over solubles and 4 percent guar were made. The handsheets made with US tobacco feedstock pulp and Spanish tobacco feedstock solubles were found to be acceptable, whereas the handsheets made with the Spanish tobacco feedstock pulp and US tobacco solubles were found to be inferior. The studies in this area are being continued to identify the "binder" in the Spanish tobacco feedstock and the major feedstock component contributing the indigenous water soluble binder.

Laboratory studies indicate that the production of a "HYBRID" RCB/RLB/RLTC sheet to be feasible. Acceptable handsheets were made with the BL/RL tobacco feedstock, 3.75 percent DAP, 7.5 percent NH_4OH, and 5 percent guar gum.

C. Plans:

1. Evaluate the processability of the guar/pectin/citric acid binder formulation at the Cast Leaf Laboratory; Optimize the binder additive levels and produce pound quantities for physical and subjective testings.

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2. Optimize DAP/NH_4OH/guar gum levels for the production of an acceptable RCB/RLB/RLTC "HYBRID" sheet at the Cast Leaf Laboratory for physical and subjective testings.

3. Continue the investigations with Spanish tobacco feedstock components to identify major contributors of indigenous water extractable binder in slurry.

4. Continue the characterization studies of other binder systems that could produce acceptable tobacco sheets.

II. MENTHOLATED RECON

A. **Objective:** Investigate the feasibility of incorporating encapsulated menthol in reconstituted tobacco sheet.

B. **Results:** Flavor Development has cigarettes made with 20 percent "mentholated" reconstituted tobacco, and submitted cigarettes for attachment of LARK filters. Cigarettes were mishandled and discarded. The analysis of the recons by Flavor Development for menthol has shown that only 1/3 of the encapsulated menthol survived the sheet making operation.

C. **Plans:** Remake recon sheets with encapsulated menthol at milder processing conditions and complete the study with machine made cigarettes.

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